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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/712,634	11/13/2003	Kazuhisa Yamamoto	YAO-3750US6	2125
23122	7590	08/24/2006	EXAMINER	
RATNERPRESTIA			NGUYEN, DUNG T	
P O BOX 980			ART UNIT	
VALLEY FORGE, PA 19482-0980			PAPER NUMBER	
			2828	

DATE MAILED: 08/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/712,634

Applicant(s)

YAMAMOTO ET AL.

Examiner

Dung (Michael) T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 80 and 82-84 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 80 and 82-84 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 80 and 82 are rejected under 35 U.S.C. 103(a) as being unpatentable over Byer et al. (5036220) in view of Tanabe (5119361) and further in view of Yao et al. (4285569).

With respect to claim 80, Byer et al. show in Fig.1 a solid state laser crystal (12) (column 4, lines 3-5) generating a fundamental wave; and an optical wavelength conversion element (11) for receiving the fundamental wave and generating a harmonic wave (column 6, lines 4-5), the optical wavelength conversion element having periodic domain inverted structures (column 5, lines 15-49).

Byer et al. lack a semiconductor laser for emitting a pumped light and a fiber for conveying the pumped light to the solid state laser crystal.

Tanabe teaches in Fig.3-4 a semiconductor laser (20) for emitting a pumped light and a fiber (12) for conveying the pumped light.

Byer et al. and Tanabe are under the same analogous art of laser.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. what is taught by Tanabe in order to pump (excite) the solid state laser crystal for generating a fundamental wavelength (column 4, lines 38-41 and 54-57).

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However, Byer and Tanabe lack an integrated modulator.

Yao teach in Fig.1 and claim 1 an integrated modulator 14 with a voltage.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. and Tanabe what is taught by Yao to obtain a phase modulation of the laser light (col.4, l.63-64).

With respect to claim 82, Byer et al. disclose the optical wavelength conversion element (11) is formed in a $\text{LiNb}_{1-x}\text{Ta}_x\text{O}_3$ ($0 \leq x \leq 1$) substrate (14) (the examiner selects $x = 1$ and therefore $\text{LiNb}_{1-x}\text{Ta}_x\text{O}_3$ becomes LiNbO_3) (column 4, lines 16-17).

Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byer et al. (5036220) in view of Tanabe (5119361), further in view of Yao et al. (4285569) and even further in view Hanihara (5430756).

With respect to claim 83, Byer et al., Tanabe, and Yao et al. disclose all limitations of the claim 80 except for the solid state laser crystal and the optical wavelength conversion element are integrated together.

Hanihara teaches in Fig. 1 the solid state laser crystal (3) and the optical wavelength conversion element (4) are integrated together.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al., Tanabe, and Yao what is taught by Hanihara in order to avoid an alignment of optical parts (between the solid state laser crystal and the optical

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wavelength conversion element) and to make the length of the laser resonator short (column 2, lines 38-46).

Claim 84 is rejected under 35 U.S.C. 103(a) as being unpatentable over Byer et al. (5036220) in view of Tanabe (5119361), further in view of Covey (4919506), and even and further in view of Yao et al. (4285569).

With respect to claim 84, Byer et al. show in Fig. 1 a solid state laser crystal (12) (column 4, lines 3-5) generating a fundamental wave; a fiber (17) for conveying the fundamental wave; and an optical wavelength conversion element (11) for receiving the fundamental wave and generating a harmonic wave (column 6, lines 4-5), the optical wavelength conversion element having periodic domain inverted structures (column 5, lines 15-49).

Byer et al. lack a semiconductor laser for emitting a pumped light and a fiber for conveying the pumped light to the solid state laser crystal.

Tanabe teaches a semiconductor laser (20) for emitting a pumped light (column 5, lines 20-22).

Byer et al. and Tanabe are under the same analogous art of laser.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. what is taught by Tanabe in order to pump (excite) the solid state laser crystal for generating a fundamental wavelength (column 4, lines 38-41 and 54-57).

However, Byer et al. and Tanabe lack a single mode fiber for conveying the fundamental from the solid state laser.

Covey teaches a single mode fiber for conveying the fundamental from the solid state laser (column 1, lines 20-21).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al. and Tanabe what is taught by Covey to eliminate or reduce velocity dispersion in the propagated light signal and hence to obtain an efficient laser light coupling (column 1, lines 14-17 and 20-22).

However, Byer et al., Tanabe, and Covey lack an integrated modulator.

Yao teach in Fig.1 and claim 1 an integrated modulator 14 with a voltage.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to provide Byer et al., Tanabe, and Covey what is taught by Yao to obtain a phase modulation of the laser light (col.4, l.63-64).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

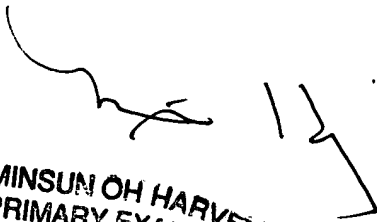
Communication Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dung (Michael) T Nguyen whose telephone number is (571) 272-1949. The examiner can normally be reached on 8:30 - 17:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Harvey can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 306-3329.

Michael Dung Nguyen


MINSUN OH HARVEY
PRIMARY EXAMINER